Minutes of the 2nd TD/BD Coordination Meeting

27 June 2003

Present: Bob Kephart, Victor Yarba, Mike Lamm, John Carson, Jim Kerby (scribe), Paul Czarapata, Hank Glass, Dave Harding.

Agenda:

1) Need answers from Beams Division
   a) New coils for LEP correctors - how many on each task number?

2) New work started or proposed
   a) New Booster dogleg stands
   b) F0 Lambertson shielding
   c) Electron Cooling laser support stand
   d) Electron Cooling vacuum system
   e) Electron Cooling return line magnetic shielding
   f) Recycler vacuum
   g) Recycler magnetic shielding from NuMI

3) Projects for FY04???
   a) We need to start engineering now

4) Status of alignment issues
   a) Possible reshimming - actively studying, planning
   b) Realignment study - status, schedule of TD work
   c) Monitoring - TD involvement

5) Other status reports
   a) Ceramic beam tubes - potential vendors identified, need visits, orders
   b) E907 - done except for one thermal study
   c) NuMI - nearing completion
   d) AP2/Debuncher aperture - status and clarification of items 223, 224, 225

6) From last meeting:
   a) TD support of BD for shutdown work - now, during?
   b) Shuttered p-bar magnet?
   c) Help with pulsed dipole?

7) Any other business?

A brief status report (as of June 24) on most jobs can be found at
http://tdserver1.fnal.gov/AcceleratorSupport/TD-EFD_Joblist.xls

Need answers from BD

On the LEP corrector coil count, it is believed that there are on the order of 90 total to make, with for the moment the known coils and assignments being 17 – Recycler; 5 – A150; 13 – MI8; and 16 – MiniBoone. Dave Harding has made and circulated for confirmation an educated guess as to the H / V splits of each of the above, but has not received a response as yet. TD has not received task codes for the above work. TD proposes the remaining coils be written as an option to the initial orders for completion in FY04, but will need the correct parts count, splits, and task codes for the work. For work to be done in time for the upcoming shutdown, TD needs immediate answers to the above questions.

As of Tuesday 24 June, the Booster Septum magnet question that would have been on this list has been resolved. The 2nd magnet measures well, and TD has received the OK to continue fabrication.

New Work Started or Proposed

Booster Dogleg Stands – TD will finish the detailed design, and pass the drawings to ANL for fabrication, who will ship completed stands back to us for mounting. FNAL will do the beam tube work. There are enough loose spares that they will be mounted on the stands, and then magnet & stands swapped in during the shutdown. The magnets removed from the booster will be radioactive, so care will be needed in handling and storage.

F0 Lambertson Shielding – "under control", mostly in BD. TD will do incoming inspection, otherwise not directly included. TD did participate in a review recently, and commented on various aspects of the proposed work. MP9 will be used for testing of a spare Lambertson to check out the fix.

Electron Cooling – TD has produced drawings for the laser support stand, which are in procurement. Vacuum system work is being supported with 2 vacuum techs and engineering help, and TD has promised help on magnetic shielding aspects that has not started yet.

Recycler – Two TD techs are working on vacuum issues. TD has promised help on magnetic shielding issues but has not started the work as yet. On magnetic shielding issues there is an outside firm present at PAC who has expressed interest in the shielding design for both electron cooling and the recycler, in FY04 after the task is better known it is proposed to initiate contacts with them.

New Item – Linac Power Tube – the spares situation with the Linac Power tubes (Burle 7835) is very tight, the company that makes them is having a hard time producing acceptable units, and have refused FNAL help in manufacture of some of the tougher tolerance pieces. The tubes were originally developed for the military in the 50's. Currently there are on the order of 24 tubes is use in the US…2 Navy, 9 BNL, 5 LANL, 1 ANL, and 7 FNAL. BD asks for a set of drawings to be made for the tube, TD will start by inspection of the complete tube and the sectioned tube BD have. After initial inspection, BD suggests a conference call w/ Jerry Grill who has proved a useful consultant on issues with these tubes in the past.

Projects for FY04??

Everyone agrees now is the time to start planning for FY04 work. It is hoped that after the upcoming reviews the picture will be clearer. Dave Harding has generated a strawman list, which he and Paul will review over the next month or so.

The plan for the NuMI Lambertsons is that they will be installed during the shutdown, meaning there are no loose spares. If there is a problem, the magnet will be moved from the NuMI beamline. But, when NuMI comes online, loose spares will be needed. TD notes this work should be planned for FY04, as from the start point of the process it will take a minimum of 9 months to produce the first item.

Status of alignment issues

TD is preparing to shim 150 magnets during the shutdown (3 crews, 2 people each, 2 magnets per day), but needs confirmation of the number and location of magnets to be shimmed. The current best guess is that the magnets on either side of B0 / D0 are the most likely candidates. In MTF it took 2 techs 2.5 hours to shim 1 magnet. MTF measurements showed the shimming has the predicted effect. MTF did see a change in roll of 1/3 mrad before and after shimming, further measurements are going to be done to see if this is random or systematic. TD needs an inventory of the magnets to be shimmed to check for interferences and check the travelers for each magnet. As opposed to taking new pictures, once the locations are known the 'stand pictures' may serve as a useful start point.

The overall alignment study and plan for the shutdown has to be reviewed and coordinated in the very near future. It is clear that the survey effort and "un-rolling" of dipoles are tough to integrate. With respect to rolling, MTF has assembled a 'mini string', 2 dipoles and a quad, to investigate the effect on neighbors if a magnet is rolled up to 8 mrad both warm and cold. The TD monitoring effort is continuing, with parts being procured for roll measurement devices.

Other status reports

Ceramic beam tubes – A travel request for a trip to the vendor will be approved. The timing is consistent w/ buying samples in FY04.

E907 – Magnet refurbishment is complete. This is an example where better communication with TD is needed. BD and TD management both understand this.

NuMI – Work is nearing completion. Dipoles are complete and measured. All but one required quadrupole (3Q120) is complete, but this second wave have not yet been measured. Several of the 3Q120 quadrupoles had to be abandoned as hard to repair. Thermal modeling and measurements are proving to be interesting. The addition of cooling water to the trim dipoles has slowed progress, but all are expected to be done by the shutdown.

AP2 Aperture – TD has completed mechanical drawings of the AP2 area, and is moving on the Debuncher.

RF Modeling / Stochastic Cooling Tanks – TD on hold per BD. Although this is not a current machine limitation, it is a long lead item and shouldn't be forgotten.

Debuncher redesign (items 223, 224, 225) – on hold per BD.

From last meeting

Shutdown - TD will support BD during the shutdown as best we can. Dave Augustine is assembling the work list, as it progresses we will do our best to support needs. TD needs to watch the vacation situation, particularly for those people we expect will be called into the shutdown work. Shutdown plan is August 25 for 7 weeks.

Accumulator injection, extraction kickers (shuttered) – There is believed to be only one of these magnets, are we vulnerable and need another one? Still an open question.

Help with pulsed dipole – TD has offered, no answer – TD sees the failure rate as being somewhat higher than normal and something to watch out for.

AOB

Bob notes that the shops are not terribly busy now, and the machinists will be paid in any event…they could be augmenting the count of Tevatron stands if BD so desired. In BD Mike McGee is the contact.

Labor for the shutdown needs to be lined up as far in advance as possible. Noting all the upcoming reviews, the earlier the better relative to the August 25 date. As soon as possible after the Lehman review appears to be the earliest possible date.

The next meeting is proposed for 2 weeks, 10 July.